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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/673,215

09/30/2003

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3595.65US01

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24113 7590 12/17/2008  
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EXAMINER

STELLING, LUCAS A

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

12/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/30/03, 3/30/05, 6/16/05, 7/23/08, 9/23/08.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 18-30 in the reply filed on 9-9-08 is acknowledged. Applicant's election of species B is also acknowledged. Accordingly, claims 20, 21, and 26 are withdrawn as directed to the non-elected species. Claims 18,19, 22-25 and 27-30 are examined on the merits. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB Patent No. 1,555,408 to Morse et al. ("Morse").

6. As to claim 18, Morse teaches a power plant which produces thermal energy which is removed to one of two heat dissipating means **(31 cooling tower, and 33 cooling pond)**. Morse also teaches a selector valve, which selectively provides thermal transfer fluid to the cooling pond **(39)**. Although Morse does not specifically contemplate operation of the selector valve based on the volume of the cooling pond, Morse does recognize the need for a sufficient water volume in the pond based on the expected cooling needs **(Morse page 3 lines 80-85)**, and that evaporation mitigation is desired in extremely arid areas **(Morse page 3 lines 85-90)**. It is within the skill and understanding of a person of ordinary skill to cease transferring thermal energy to the cooling pond when there is insufficient water in it for cooling operations. And therefore, it would have been obvious to person of ordinary skill in the art at the time of invention to transfer thermal energy to the pond in Morse when the volume is above a predetermined volume level, and to cease transferring water to the pond when water has passed a low threshold, thereby transferring water only to the cooling tower.

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7. As to claim 19, Morse teaches the method of claim 18 where transferring thermal energy from the power plant to the process water pond further comprising:

transferring process water from the process water pond through the pond water heat exchanger for receiving thermal energy from the plant; and returning the heated process water from the pond water heat exchanger to the pond (**Morse Fig. 1, 26 is a heat exchanger loop in fluid communication with the pond**).

8. Morse is different than claim 19 in that the turbines connect directly to the process water heat exchanger, instead of using a turbine heat exchanger. In an alternative embodiment in Morse an independent coolant circulating circuit is used to transfer energy from the closed loop generating section and the closed loop cooling pond section (**See Fig. 3, 113 separates generator section from coolant loop, and 173 separates pond from cooling loop**). The use separate cooling loops is within the skill of a person of ordinary skill in the art because they allow for selection of differing heat transfer and working liquids based on the needs of the system; for example, the working fluid in the turbine could be methanol, the circulating coolant in the coolant loop could be freshwater or a liquid with high heat capacity, and the pond could be salt water or water with another solute that effects its evaporative properties. Therefore, it would have been obvious to use a coolant loop to transfer heat energy from a turbine heat exchange to a pond heat exchanger.

9. Claims 22-25, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morse in view of U.S. Patent No. 4,402,923 to Lang ("Lang") and

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"Design & Operating Criteria for a Gypsum Stack/Cooling Pond from an Owner/Operator's Point of View" Cameron et al. ("Cameron") and U.S. Patent No. 4,917,024 to Marten et al. ("Marten").

10. As to claims 22-25, and 27-30 Morse teaches the method of claim 18, but is silent as to the pH, of the process water, whether it contains phosphoric acid, the substances listed in claim 24, or whether concentrated process water is used in a phosphoric acid production process.

11. Marten teaches the use of byproduct gypsum from the production of electricity using a coal fired power plant (**See Fig. 1**). It is within the skill of a person of ordinary skill in the art to use a cooling pond as in Morse in the coal fired plant of Marten in order to provide cooling and heat removal means of waste heat (**Morse page 1 lines 10-40, teaches that it is common to provide heat removal in a power plant**).

12. Lang teaches production of phosphoric acid using a gypsum waste pond (**See Fig. 1 and col. 10 lines 15-25**).

13. Cameron teaches that gypsum stacks are often used in conjunction with cooling ponds in chemical manufacturing processes (**Cameron page 194 in "Decanting Water from the Settling Area"**). Under Rationale A of *KSR v. Teleflex*, the combination of Morse, Marten, Lang, and Cameron in such a manner as to meet the limitations of claims 22-25 and 27-30 constitutes combining prior art elements (**Morse teaches a cooling system for a power plant, Marten teaches that gypsum is a byproduct of coal fired power plants, Lang teaches using a gypsum pond in the production of phosphoric acid, and Cameron teaches that gypsum stacks and cooling ponds**

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**are used in conjunction with one another in chemical manufacturing installations where gypsum is produced) according to known methods (combined usage of a waste pond as cooling pond, and usage of a waste pond as process water pond are shown in Cameron and Lang, respectively, the use of an industrial pond as a heat sink, waste storage/concentration, and process water pond is another form of combined usage to reduce land use -- Cameron teaches that gypsum ponds are already the chemical manufacturing plants largest land user) to yield predictable results (The result of combining the teachings of Morse, Marten, Cameron, and Lang would be a coal fired power plant which uses its gypsum stack in conjunction with the cooling pond and produces phosphoric acid as a useful byproduct);** and it is therefore obvious to a person of ordinary skill in the art.

14. The specific chemical compositions claimed are incidental in the production and use of gypsum, phosphogypsum, phosphoric acid, as well as when using coal fired power plants.

15. The specific concentrations of chemicals found within the process water are incidental. And, to the extent they are critical and result effective, the *discovery of optimum value of result effective variable in known process is ordinarily within the skill in the art and would have been obvious, consult In re Boesch and Slaney (205 USPQ 215 (CCPA 1980))*.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-



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3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

las 12-15-08

/Duane S. Smith/  
Supervisory Patent Examiner, Art  
Unit 1797